1300 Waste Management Section

NOTE: New regulations as indicated with underlines. Deleted regulations as indicated with ~~strikethrough~~.

1301 Regulations Governing Solid Waste

1.0 Declaration Of Intent

The Delaware Department of Natural Resources and Environmental Control (Department) finds and declares that improper solid waste handling and disposal practices may result in environmental damage, including substantial degradation of the surface and ~~ground water~~ groundwater and waste of valuable land and other resources, and may constitute a continuing hazard to the health and welfare of the people of the State…

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2.0 Scope and Applicability

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2.1. Applicability

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2.1.2.8. Active and Inactive surface impoundments.

3.0 Definitions

The following words, phrases, and terms as used in these regulations have the meanings given below:

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"**Aquifer**" means a geologic formation, group of formations, or part of a formation capable of yielding ~~a significant amount~~ usable quantities of ~~ground water~~ groundwater to wells, ~~springs~~ springs, or surface water.

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"Closed" means a facility that has ceased the management of solid waste (e.g., landfilling, material recovery operations) and the owner or operator has closed in accordance with the approved facility closure plan and all other applicable closure requirements.

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"Coal Combustion Residuals (CCR)" means fly ash, bottom ash, boiler slag, flue gas desulfurization, and other solid wastes generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

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"**Composting Facility**" means a facility where organic material is processed using composting technology which may ~~include~~ include, but is not limited ~~to~~ to, physical turning, windrowing, ~~in vessel~~ in-vessel composting, or other mechanical handling of organic material.
"**Confined Aquifer**" means an aquifer containing ~~ground water~~ groundwater, which is everywhere at a pressure greater than atmospheric pressure…

* * * * *

"**Dike**" means an embankment, berm, or ridge of either natural or man-made materials used to prevent or to control the movement of solids, liquids, sludges, or other materials.

* * * * *

"**Existing Facility**" means a facility … has commenced construction if either:

~~(i) An onsite physical construction program has begun and is moving toward completion within a reasonable time; or~~

~~(ii) the owner or operator has entered into contractual obligations which cannot be cancelled or modified without substantial loss for physical construction to be completed within a reasonable time.~~

(1) An onsite physical construction program has begun and is moving toward completion within a reasonable time; or

(2) The owner or operator has entered into contractual obligations which cannot be cancelled or modified without substantial loss for physical construction to be completed within a reasonable time.

"**Existing Landfill Cell**" means a landfill cell which was in operation or for which construction had commenced on or before the date of enactment of these regulations, provided that the landfill cell was being constructed or operated pursuant to all permits and/or approvals required by the Department at the time of enactment. A landfill cell has commenced construction if either:

(1) An onsite physical construction program has begun and is moving toward completion within a reasonable time; or

(2) The owner or operator has entered into contractual obligations which cannot be cancelled or modified without substantial loss for physical construction to be completed within a reasonable time.

"**Expansion**" means the process of increasing the areal dimensions, vertical elevations, or slopes beyond the original approved limits of the facility.

"**Facility**" means all contiguous land, ~~and~~ structures, other appurtenances, and improvements …

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"**Garbage**" means any putrescible solid and semisolid animal and/or vegetable wastes resulting from the production, handling, preparation, cooking, ~~serving~~ serving, or consumption of food or food materials.

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"Gross Vehicle Weight Rating (GVWR)" or gross vehicle ~~weight~~ weight, means the value specified by the manufacturer as the loaded weight of a single vehicle.

~~**"Ground Water"**~~ **"Groundwater"** means any water naturally found under the surface of the earth in a zone of saturation.

"**Hazardous Waste**" means a solid waste… . Without limitation, included within this definition are those hazardous wastes described in Sections 261.31, 261.32, and 261.33 of ~~the Delaware~~ Delaware's Regulations Governing Hazardous Waste (DRGHW).

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"**Hydraulic Conductivity**" means the capacity to transmit water through a permeable medium (i.e., the coefficient of permeability)…

"**Impermeable**" means having a hydraulic conductivity equal to or less than 1 x ~~10^{-7}~~ 10^{-7} cm/sec as determined by field and laboratory permeability tests…

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"**Landfill Cell Boundary**" means an imaginary vertical surface located at the hydraulically downgradient limit of the cell. This imaginary vertical surface extends down into the uppermost aquifer.

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"**Infectious Waste**": see Section 11 - Special Wastes Management, Part 1 – Infectious Waste, Section 11.3 for additional definitions pertaining to infectious waste.

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"**New Industrial Landfill Cell**" means any industrial solid waste landfill unit which has not received waste prior to the effective date of these regulations. See *Existing Landfill Cell* definition.

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"**Personnel**" or "**Facility Personnel**" means all persons who are trained to work at, or oversee the operations of, a solid waste facility, and whose actions or failure to act may result in noncompliance with the requirements of ~~the Delaware~~ Delaware's Solid Waste Regulations or other regulations under the jurisdiction of the State of Delaware.

~~"**Postclosure Care**"~~ **"Post-Closure Care"** means maintenance and long-term monitoring of, and financial responsibility for, a closed facility.

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"Qualified Person" means a person or persons trained to recognize specific appearances of structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety at Solid Waste Facilities (e.g., landfills) by visual observations and, if applicable, to monitor instrumentation.

"Perched Water (or Perched Water Table)" means a subsurface, discontinuous saturated lense with un-saturated conditions existing both above and below; typically due to the existence of a horizontal, low-permeability layer in a relatively high-permeability formation that captures and contains the downward percolating groundwater.

"Professional Engineer" means an individual who is currently licensed by the State of Delaware to practice one of more disciplines of engineering and who is qualified by education, technical knowledge, and experience to make the specific technical certifications required.

"Professional Geologist" means an individual who is currently licensed by the State of Delaware to practice one of more disciplines of geology and who is qualified by education, technical knowledge, and experience to make the specific technical certifications required.

"**Recharge Area**" means the total surficial area of land surface where the movement of water downward from the land surface through the unsaturated zone to the saturated zone or water table occurs; and has a discharge point (or zone) which specifically defines the area of surface water capture. ~~that portion of a drainage basin in which the net saturated flow of groundwater is directed away from the water table~~.

"Recognized and Generally Accepted Good Engineering Practices" means engineering maintenance or operation activities based on established coded, widely accepted standards, published technical reports, or a practice widely recommended throughout the industry. Such practices generally detail approved ways to perform specific engineering, inspection, or mechanical integrity activities.

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"**Regulated Medical Waste**": see Section 11 - Special Wastes Management, Part 1 – Infectious Waste, Section 11.3 for additional definitions pertaining to Regulated Medical / Infectious Waste.

"Representative Sample" means a sample of a universe or whole (e.g., waste pile, lagoon, and groundwater) which can be expected to exhibit the average properties of the universe or whole.

"**Resource Recovery**" means … serving a specific ~~purpose~~ purpose, are reused or recycled…

"**Resource Recovery Facility**" means a facility that is either a Materials Recovery Facility ~~Or A~~ or a Thermal Recovery Facility.

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"**Runoff**" means any precipitation, leachate, or other liquid that drains over land from any part of a facility.

~~"**Runon**"~~ **"Run-on"** means any precipitation, leachate, or other liquid that drains over land onto any part of a facility.

* * * * *

"Seasonal high water table" means an undulating or planar surface (two-dimensional) defined by a series of the highest points of saturated soil or rock in the uppermost-unconfined aquifer that is seasonally or permanently saturated. A two-dimensional surface, below which all pores in rock or soil that is seasonally or permanently saturated. The season high water table must be determined using one of the following:

(1) A representative number of soil profile descriptions (minimum of three (3) soil borings or two (2) test pits per acre and one soil profile description per design area in the evaluated areas(s). Soil boring and test

pit data must be evaluated by a State of Delaware Class D Soil Scientist. These shall identify the soil series or taxonomic subgroup (e.g. Sassafras or Typic Hapludult). The geographic coordinates of each representative soil boring and/or test pit, a minimum of two (2), must be determined by a global positioning system.

(2) Zones of saturation (as indicated by redoximorphic features).

(3) Wet-season water-level monitoring shall be conducted at least weekly from January 1st through April 30th. Wells installed for the purpose of establishing groundwater-flow direction may be used for wet season monitoring. Pressure transducers may be deployed to collect continuous water-level data. On-site wet-season data shall be correlated to the nearest unconfined well(s) with a long-term record (≥ 20 years). The hydrograph shall include; the minimum, 10th, 25th, 50th (e.g., median), 75th and 90th percentiles and maximum water level for the long-term well(s) in conjunction with the on-site water-level data. The peak on-site wet-season water level shall be corrected to the 10th percentile of the long-term record. Water levels ≤ 10th percentile shall not be corrected.

* * * * *

"Seismic Factor of Safety" means the factor of safety (safety factor) determined using analysis under earthquake conditions using the peak ground acceleration for seismic event with a 2% probability of exceedance in 50 years, equivalent to a return period of approximately 2,500 years, based on the U.S. Geological Survey (USGS) seismic hazard maps for seismic events with this return period for the region where the coal combustion residual (CCR) surface impoundment is located.

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"**Site**" means the area … recycling, ~~storage~~ storage, or disposal areas are located.

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"**Solid Waste**" means any garbage… as defined by the Atomic Energy Act of ~~l954~~ 1954, as amended.
"**Solid Waste Management"** or "**Management"** means the systematic administration of the activities which provide for the collection, source separation, storage, transportation, processing, treatment, or disposal of solid waste.

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"**Special Solid Wastes**" means those wastes that require extraordinary management. They include but are not limited ~~to~~ to: abandoned …

* * * * *
"Surface impoundment" means a natural topographic depression, and/or manmade excavation, and/or diked area formed primarily of earthen materials (although it may be lined with man-made materials) or remains unlined, and which is designed to hold an accumulation of liquid wastes or wastes containing free liquids.

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"**Uppermost Aquifer**" means … boundary. Upper limit is measured at a point nearest to the natural ground surface to which the aquifer rises during the wet season.

* * * * *

"**Water Table**" means that surface in a ~~ground water~~ groundwater body …
"**Well**" means any excavation that is drilled, cored, bored, washed, driven, dug, ~~jetted~~ jetted, or otherwise constructed …
"**Working Face**" means that portion of a landfill where waste is discharged, ~~spread~~ spread, and compacted …

4 Permit Requirements And Administrative Procedures

4.1 General Provisions

4.1.1 Permit required …
4.1.2 Public notice...
4.1.3 Approval/denial …
4.1.4 Suspension…
4.1.5 Duration of permit …
4.1.6 Permit renewal

~~Any person wishing to renew an existing permit that is to expire shall, not less than 180 days prior to the expiration date of the existing permit, submit to the Department, a permit renewal application form with all supporting documentation and appropriate fees as required by these regulations.~~

~~In the event that the permittee submits a timely application, (not less than 180 days prior to the expiration date of the existing permit) and the Department, through no fault of the permittee, is unable to make a final determination on the application before the expiration date of the existing permit, the Department may, at its discretion, grant an extension of that permit. If the Department issues an extension, all conditions of the permit will remain in effect, for a period of time which will be determined by the Department.~~

Any person wishing to renew an existing permit that is to expire shall, not less than 180 days prior to the expiration date of the existing permit, submit to the Department, a permit renewal application form with all supporting documentation and appropriate fees as required by these regulations.

In the event that the permittee submits a timely application, (not less than 180 days prior to the expiration date of the existing permit) and the Department, through no fault of the permittee, is unable to make a final determination on the application before the expiration date of the existing permit, the Department may, at its discretion, grant an extension of that permit. If the Department issues an extension, all conditions of the permit will remain in effect, for a period of time which will be determined by the Department.

4.1.7 Modification of permit …
4.1.8 Transfer of a permit.

Until the permit has been transferred in accordance with this section of the regulations, the current permittee shall remain liable for compliance with all solid waste permit requirements, including liability for financial assurance, ~~closure~~ closure, and post-closure care. The following submittals are required in order to complete a permit transfer.

4.1.8.1 At least 60 days prior…
4.1.8.2 At least 60 days prior…

* * * * *

4.1.8.2.4 Demonstration that the prospective transferee has satisfied the financial assurance requirements imposed by these regulations. For additional information on financial assurance requirements see ~~section 4.1.11~~ Section 4.1.11 of these regulations.

4.1.8.3 In the event…
4.1.8.3.1 close the facility in accordance with the closure requirements contained in the solid waste facility permit and these regulations, or
4.1.8.3.2 continue to maintain control of, and responsibility for the facility in compliance with the conditions of the permit and these regulations, including, but not limited to to, the requirements for financial assurance, operations, recordkeeping, reporting, monitoring, closure, ~~postclosure~~ post-closure care, and corrective actions if needed.

4.1.9 Enforcement …
4.1.10 Replacement of Contaminated Water Supplies…
4.1.11 Financial Assurance Criteria
4.1.11.1 Applicability…
4.1.11.2 Financial Assurance for Closure, Post-Closure Care, and Corrective Action

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4.1.11.2.4 The mechanisms used to demonstrate financial assurance…
4.1.11.2.4.1 Trust Fund

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Condition 11: After beginning closure… Reimbursements will be allowed only if the Secretary determines that the partial or final expenditures are in accordance with the approved closure, ~~postclosure~~ post-closure care, or corrective action plan or are otherwise justified…

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4.1.11.2.4.2 Surety Bond…
4.1.11.2.4.3 Letter of Credit…
4.1.11.2.4.4 Insurance…
4.1.11.2.4.5 Local Government Financial Test and Guarantee…
4.1.11.2.4.6 Corporate Financial Test and Guarantee

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Condition 9: A Certified … The opinion must be unqualified (not modified by conditions or reservations) and demonstrate that the firm has prepared its financial statements in accordance with generally accepted accounting ~~principals~~ principles for corporations.

Condition 10: In the event that the CFO does not use financial test figures directly ~~form~~ from the annual statements provided to the Securities and Exchange Commission, then a special report from an independent accountant shall be required…

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4.2 Application Procedures For Sanitary And Industrial Landfills

Unless otherwise specified within these regulations, the following application procedures apply to all submissions received after **[INSERT DATE 21 DAYS AFTER PUBLICATION IN SATE REGISTER]**.

4.2.1 Application

Any person desiring to construct or operate a sanitary or industrial landfill or cell must submit a letter of intent to the Department. The letter should indicate the projected design and usage of the proposed facility. The letter of intent shall be followed by the submission, by the applicant, of the following additional information:

4.2.1.2 A Solid Waste Management Facility Application, provided by the Department. All information provided by the applicant is certified to be true, accurate, and complete by the applicant's signature on the provided application.

4.2.1.3 Proof of ownership of the property. If the applicant does not own the property, a copy of the lease agreement and the owner's permission to conduct the proposed activity on the property must also be submitted.

A plan of operation. This report shall be prepared under the direction of and signed by a Professional Engineer or Professional Geologist registered in Delaware or other Department-approved person and shall include the following:

4.2.1.3.4 A narrative description of the type of facility and of the solid waste handling and disposal procedures to be ~~used,~~ used;

4.2.1.3.5 A narrative explaining the methods and schedule for operation, modification, use, and maintenance of the various components of the ~~facility,~~ facility;

4.2.1.3.6 A description of the proposed monitoring ~~methods,~~ methods;

4.2.1.3.7 A description of the proposed methods for controlling noise, litter, odors, dust, insects, and ~~rodents,~~ rodents; and

4.2.1.3.8 A contingency plan to be implemented in case of emergency (e.g., a fire, explosion, or spill that threatens public health and safety or the environment).

4.2.1.4 An engineering report. This report shall be prepared and signed by a Professional Engineer registered in Delaware and shall include the following:

4.2.1.4.4 Descriptions and specifications of all proposed design ~~features,~~ features;

4.2.1.4.5 A description of the proposed installation methods and ~~procedures,~~ procedures;

4.2.1.4.6 A schedule of events for construction of the ~~facility,~~ facility;

4.2.1.4.7 Proposed design capacity in both tons and cubic yards per day, and projected life expectancy of the ~~facility,~~ facility; and

4.2.1.4.8 A construction quality assurance plan.

4.2.1.5 A hydrogeological assessment. A hydrogeological investigation must be performed at the proposed site and approved by the Department before a construction permit will be issued. This investigation shall include a series of test borings and wells, constructed to a depth and in a number sufficient to identify:

4.2.1.5.4 The occurrence and characteristics of the unconfined and first confined ~~aquifers,~~ aquifers;

4.2.1.5.5 ~~Ground water~~ Groundwater flow ~~directions,~~ directions;

4.2.1.5.6 ~~Ambient~~ Background ~~ground water~~ groundwater quality using a minimum of eight (8) independent samples for each background and downgradient well;

4.2.1.5.7 Potential pathways of contaminants to points of ~~ground water~~ groundwater ~~discharge,~~ discharge; and

4.2.1.5.8 Approximate ~~ground water~~ groundwater flow rates and travel times from the facility to points of discharge (including wells and/or surface water).

In addition, delineation of the anticipated maximum elevation of the seasonal high water table shall be provided.

This investigation and report shall be prepared and signed by a Professional Geologist registered in Delaware.

4.2.1.6 An environmental assessment shall be performed to provide a detailed analysis of the potential impact of the proposed facility on the environment. This assessment shall be prepared under the direction of and signed by a Professional Engineer registered in Delaware. Factors to be considered include:

~~Air quality~~
~~Water quality~~
~~Stream flow~~
~~Fish and wildlife~~
~~Plants~~
~~Threatened or endangered species~~
~~Water uses~~
~~Land use~~
~~Aesthetics~~
~~Traffic~~
~~Public health and safety~~
~~Cultural, recreational, and natural areas~~
~~Historic sites~~
~~Social and economic factors.~~
~~Soil Quality~~

- Air quality
- Water quality
- Stream flow
- Fish and wildlife
- Plants
- Threatened or endangered species
- Water uses
- Land use
- Aesthetics
- Traffic
- Public health and safety
- Cultural, recreational, and natural areas
- Historic sites
- Social and economic factors.
- Soil Quality

If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.

4.2.1.7 Topographical and site location maps. This shall include a topographical map or series of maps on a scale satisfactory to the Department but in no case less than one inch equal to 400 feet,

showing topographic elevations surveyed with reference to mean sea level, and any necessary narrative descriptions, including but not limited to the following:

4.2.1.7.4 The legal boundaries of the property as determined by a survey performed by a registered surveyor; the names of the present owners of the proposed site and of all adjacent lands; and a description of all title, deed, or usage restrictions affecting the proposed permit area.

4.2.1.7.5 The boundaries of the facility over the estimated total life of the proposed operation, including the boundaries of land that will be affected in each sequence of disposal activity.

4.2.1.7.6 The boundaries of land where solid waste will be stored at any time over the estimated total life of the proposed operation.

4.2.1.7.7 The locations and names of all water supply wells or surface water intakes within 1/4 mile of the disposal site boundaries.

~~4.2.1.7.8 Proof that all applicable zoning approvals and all appropriate federal, state, and local environmental permits have been obtained.~~

~~4.2.1.7.9 Closure plan as described in Section 5.10.3 or 6.10.3, as appropriate.~~

4.2.1.8 Proof that all applicable zoning approvals and all appropriate federal, state, and local environmental permits have been obtained.

4.2.1.9 Closure plan as described in Section 5.10.3 or 6.10.3, as appropriate.

4.2.1.10 Proof of financial responsibility for closure and post-closure care, as described in Section 4.1.11.

4.2.1.11 Proof that the facility meets the siting criteria required by ~~Section 5.1. or 6.1~~ Section 5.1 or 6.1.

4.2.1.12 A Stormwater Plan (SWP) (aka Stormwater Pollution and Prevention Plan (SWPPP)). The SWP/SWPPP shall describe stormwater management controls and practices in place or planned for the facility and shall identify potential sources of pollutants which may reasonably be expected to affect the quality of stormwater discharges from landfill operations and site maintenance. The SWP/SWPP need not address construction activities regulated by a Sediment and Stormwater Plan Approval issued by the Department. SWP/SWPPP plans created under regulations other than DRGSW can be substituted for this requirement provided the plan meets the minimum requirements specified in Sections 5.6 or 6.6.

4.2.1.13 Any other related reports, data, maps, or information that the Department requires.

4.2.2 Construction and Operation

4.2.2.2 The applicant shall not commence construction of the landfill or cell until the Department has issued the solid waste permit required by these regulations.

4.2.2.3 After construction has been completed and prior to the placement of solid waste, the permittee shall submit a final report for the Department's approval. The final report shall certify that the construction of the landfill or cell was completed in accordance with the engineering report to include the Construction Quality Assurance Plan, construction and material specifications, and design drawings. The final report shall be certified correct by the construction quality assurance engineer, who must be a Professional Engineer registered in Delaware. The permittee shall not place solid waste into the newly constructed landfill or cell until the Department has provided its written notification that the construction and the final report meet the requirements of the permit and the Delaware Regulations Governing Solid Waste.

4.2.3 Closure

4.2.3.2 Any person wishing to modify their current permit to allow closure of a facility or part thereof must submit the following to the Department at least 180 days prior to the projected date when wastes will no longer be accepted:

4.2.3.2.4 Notification of intent to ~~close,~~ close;

4.2.3.2.5 Closure plan as described in Section 5.10.3 or 6.10.3, as ~~appropriate,~~ appropriate; and

4.2.3.2.6 Post-closure care plan describing how the requirements of Section ~~5.K~~ 5.12 or ~~6.K~~ 6.12~~.~~ (as appropriate) will be met.

4.2.3.3 If the Department determines that the closure plan and supporting documents are sufficient to ensure closure, it will modify the permit to allow closure to be performed. The owner or operator of the landfill shall not commence closure of the landfill or cell without first obtaining the necessary permit modifications.

4.2.3.4 After closure has been completed, the permittee shall submit a final report for the Department's approval. The final report shall certify that the closure of the landfill or cell was completed in accordance with the closure plan to include the Construction Quality Assurance Plan, construction and material specifications, and design drawings. The final report shall be certified correct by the construction quality assurance engineer, who must be a Professional Engineer registered in Delaware. The landfill or cell shall not be considered closed until the Department

has provided its written notification that the closure has been accomplished in accordance with the solid waste permit and these regulations.

4.2.3.5 Facilities entering the Post-closure period will be issued a post-closure permit based upon the approved post-closure plan, monitoring requirements, gas and leachate control, maintenance, and corrective actions (if required).

4.3 This Paragraph Reserved

4.4 Application Procedures For Resource Recovery Facilities

4.4.1 Application…

4.4.1.1 A Solid Waste Management Facility Application…

4.4.1.2 Proof of ownership of the property…

4.4.1.3 A plan of operation…

4.4.1.4 An engineering report. This report shall be prepared and signed by a Professional Engineer registered in Delaware and shall include the following:

* * * * *

4.4.1.4.10 An identification of possible ~~ground water~~ groundwater and surface water discharges.

4.4.1.5 A recycling analysis….

4.4.1.6 A plan for sampling…

4.4.1.7 A hydrogeological assessment…

4.4.1.8 The environmental assessment shall provide a detailed analysis of the potential impact of the proposed facility on the environment. Factors to be considered include, but are not necessarily limited to:

~~Aesthetics~~
~~Air quality~~
~~Cultural, recreational, and natural areas~~
~~Fish and wildlife~~
~~Historic Sites~~
~~Land use~~
~~Plants~~
~~Public health and safety~~
~~Social and economic factors.~~
~~Soil Quality.~~
~~Stream flow~~
~~Threatened or endangered species~~
~~Traffic~~
~~Water quality~~
~~Water uses~~

- Aesthetics
- Air quality
- Cultural, recreational, and natural areas
- Fish and wildlife
- Historic Sites
- Land use
- Plants
- Public health and safety
- Social and economic factors.
- Soil Quality.
- Stream flow
- Threatened or endangered species
- Traffic
- Water quality
- Water uses

~~If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.~~

If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.

4.4.1.9 Topographical and site location maps. This shall include a topographical map or series of maps on a scale satisfactory to the ~~Department~~ Department, but in no case…

* * * * *

4.4.2 Construction and operation

4.4.2.1 The applicant shall not commence construction of a new resource recovery facility…

4.4.2.2 After the construction … The final report shall certify that the construction of the resource recovery facility was completed in accordance with the engineering report to include the quality assurance plan, construction and material ~~specifications~~ specifications, and design drawings. The final report shall be certified correct by the third-party quality assurance engineer, who must be a Professional Engineer registered in Delaware. The permittee shall not commence operations, ~~store~~ store, or receive solid waste…

4.4.3 Closure…

4.4.3.1 Written notification of intent to close.

4.4.3.2 Updated closure plan.

4.4.3.3 Closure ~~schedule~~ schedule.

4.4.3.4 An evaluation of the impact…

4.5 Application Procedures For Transfer Stations

4.5.1 Application…

4.5.1.1 A Solid Waste Management Facility Application…

4.5.1.2 Proof of ownership of the property…

4.5.1.3 A plan of operation

~~The applicant shall submit a plan of operation in a format that includes a dated title page (title, name/location of facility, author, permittee name), a table of contents, numbered pages, labeled chapters and subsections, and numbered paragraphs. Content of the plan shall include the following:~~

The applicant shall submit a plan of operation in a format that includes a dated title page (title, name/location of facility, author, permittee name), a table of contents, numbered pages, labeled chapters and subsections, and numbered paragraphs. Content of the plan shall include the following: …

4.5.1.4 An engineering report…

4.5.1.5 A hydrogeological assessment…

4.5.1.5.1 The occurrence and characteristics of the water table aquifer.

4.5.1.5.2 ~~ground water~~ groundwater flow directions.

4.5.1.5.3 ~~Ambient~~ Background ~~ground water~~ groundwater quality.

4.5.1.5.4 Potential pathways of contaminants to points of ~~ground water~~ groundwater discharge.

~~This investigation and report shall be signed by a Professional Geologist registered in Delaware.~~

This investigation and report shall be signed by a Professional Geologist registered in Delaware.

4.5.1.6 The environmental assessment shall provide a detailed analysis of the potential impact of the proposed facility on the environment. Factors to be considered include:

~~Aesthetics~~
~~Air quality~~
~~Cultural, recreational, and natural areas~~
~~Fish and wildlife~~
~~Historic sites~~
~~Land use~~
~~Plants~~
~~Public health and safety~~
~~Social and economic factors.~~
~~Soil Quality~~
~~Stream flow~~
~~Threatened or endangered species~~
~~Traffic~~
~~Water quality~~
~~Water uses~~

- Aesthetics

- Air quality
- Cultural, recreational, and natural areas
- Fish and wildlife
- Historic sites
- Land use
- Plants
- Public health and safety
- Social and economic factors.
- Soil Quality
- Stream flow
- Threatened or endangered species
- Traffic
- Water quality
- Water uses

~~If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.~~

If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.

* * * * *

4.5.2 Construction and operation

4.5.2.1 The applicant shall…

4.5.2.2 After the construction of … The permittee shall not commence operations, ~~store~~ store, or receive solid waste…

4.6 Application Procedures For Infectious Waste Management Facility

4.6.1 Application…

4.6.1.1 A Solid Waste Management Facility Application…

4.6.1.2 Proof of ownership of the property…

4.6.1.3 A plan of operation. This plan shall include the following:

* * * * *

4.6.1.3.6 A description showing that the facility has developed a validation program which demonstrates the effectiveness of the treatment method by performing an Initial Efficacy Test and Periodic Verification ~~Test(s).~~ Tests(s);

* * * * *

4.6.1.3.11 A description of the proposed methods for controlling noise, litter, odors, vectors, dust, fires, and explosions; and

4.6.1.3.12 A contingency plan…

4.6.1.4 An engineering report…

4.6.1.5 A hydrogeological assessment…

4.6.1.5.1 The occurrence and characteristics of the unconfined and first confined ~~aquifers,~~ aquifers;

4.6.1.5.2 ~~ground water~~ groundwater flow ~~directions,~~ directions;

4.6.1.5.3 ~~Ambient~~ Background ~~ground water~~ groundwater ~~quality,~~ quality; and

4.6.1.5.4 Potential pathways of contaminants to points of ~~ground water~~ groundwater discharge.

~~In addition, an evaluation shall be made of the elevation of the seasonal high water table.~~

~~This investigation and report shall be signed by a Professional Geologist registered in Delaware.~~

In addition, delineation of the anticipated maximum elevation of the seasonal high water table shall be provided.

This hydrogeological investigation and report shall be signed by a Professional Geologist registered in Delaware.

4.6.1.6 An environmental assessment shall be performed to provide a detailed analysis of the potential impact of the proposed facility on the environment. Factors to be considered include:

~~Aesthetics~~
~~Air quality~~
~~Cultural, recreational, and natural areas~~
~~Fish and wildlife~~
~~Historic sites~~
~~Land use~~
~~Plants~~
~~Public health and safety~~
~~Social and economic factors.~~
~~Soil Quality~~
~~Stream flow~~
~~Threatened or endangered species~~
~~Traffic~~
~~Water quality~~
~~Water uses~~

- Aesthetics
- Air quality
- Cultural, recreational, and natural areas
- Fish and wildlife
- Historic sites
- Land use
- Plants
- Public health and safety
- Social and economic factors.
- Soil Quality
- Stream flow
- Threatened or endangered species
- Traffic
- Water quality
- Water uses

~~If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.~~

If the applicant or the Department determines that the proposed facility may cause a threat to human health or the environment, the applicant must provide a written explanation of how he or she plans to mitigate the potential harm.

4.6.1.7 Topographical … descriptions, ~~including~~ including, but not limited ~~to~~ to, the following:…

4.6.1.8 Proof that all applicable zoning approvals and all appropriate federal, state, and local environmental permits have been obtained.

4.6.1.9 Closure plan that conforms with Section 11 - Special Wastes Management, Part 1 – Infectious Waste, Section 11.8, as appropriate.

4.6.1.10 Proof of financial responsibility for closure as described in Section 4.1.11.2 and 4.1.11.4.

4.6.1.11 Proof that the facility meets the siting criteria required by ~~Section 11.1.2~~ Section 11 - Special Wastes Management, Part 1 – Infectious Waste, Section 11.2.

4.6.1.12 Any other related reports, data, maps, or information that the Department requires.

4.6.2 Construction and operation…

4.6.3 Closure. Any person wishing to close an infectious waste facility must submit the following to the Department:

4.6.3.5 Notification of intent to close.

4.6.3.6 A detailed plan for closing the facility so as to achieve the objectives described in ~~Section 11.10~~ Section 11 - Special Wastes Management, Part 1 – Infectious Waste.

4.6.3.7 If the Department approves the closure plan, it will modify the facility's permit to allow closure to take place.

4.7 Application Procedures For Solid Waste Transporters…

4.8 Application Procedures For Scrap Tire Facilities…

6 Industrial Landfills

(NOTE: This section applies to those landfills that dispose of only industrial and/or dry waste. Additional requirements for landfills containing coal combustion residuals are located in *Section 11 – Special Wastes Management, Part 3 – Coal Combustion Residuals*.)

6.1 Siting

6.1.1 Industrial landfill facilities shall be located only in areas where the potential for degradation of the quality of air, land, and water is minimal.

6.1.2 All industrial landfill facilities shall be constructed to at least minimum design requirements as contained in Section 6.2. More stringent designs will be required where deemed necessary by the Department for the protection of ~~ground water~~ groundwater resources.

6.1.3 No new cell of an industrial landfill shall be located in an area such that solid waste would at any time be deposited:

6.1.3.1 Within the 100 year flood plain as delineated by the Federal Emergency Management Agency.

6.1.3.2 In an area that may cause or contribute to the degradation of any state or federally regulated wetlands unless the owner or operator can demonstrate to the satisfaction of the appropriate wetlands regulatory agency that:

6.1.3.2.1 ~~there~~ There is no impact to any regulated wetlands on the site, or

6.1.3.2.2 ~~any~~ Any impact will be mitigated as required.

6.1.3.3 Within one mile of any state or federal wildlife refuge, wildlife area, or park, unless specifically exempted from this requirement by the Department.

6.1.3.4 So as to be in conflict with any locally adopted land use plan or zoning requirement.

6.1.3.5 Within the wellhead protection area of a public water supply well or well field or a formally designated aquifer resource protection area.

6.1.3.6 Within 200 feet of a fault that has had displacement during Holocene time (unless it can be demonstrated that a lesser setback distance would prevent damage to the structural integrity of the landfill unit and be protective of human health and the environment.)

6.1.3.7 Within a seismic impact zone unless it can be demonstrated that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. For the purposes of this section:

6.1.3.7.1 Seismic impact zone means an area with a two percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 50 years.

6.1.3.7.2 Maximum horizontal acceleration in lithified earth material means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 98 percent or greater probability that the acceleration will not be exceeded in 50 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

6.1.3.7.3 Lithified earth material means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete and asphalt or unconsolidated earth materials, soil or regolith lying at or near the earth surface.

6.1.3.8 In unstable areas, unless engineering measures have been incorporated in the design to insure the integrity of the structural components of the waste facility (including liners, leachate collection systems, run-on/runoff control, capping and anything affecting the containment and/or possible release of contaminants.) Unstable areas include those of (1) poor foundation conditions (possible subsidence), (2) susceptibility to mass movement, or (3) karst terrain.

6.1.3.9 In areas where valuable aquifers would be threatened by contaminant releases, unless viable alternatives have been dismissed and stringent design measures have been incorporated to minimize the possibility and magnitude of releases.

6.1.3.10 Within 200 feet of the facility property boundary unless otherwise approved by the Department.

6.1.3.11 In an area that is environmentally unique or valuable.

6.2 Design

6.2.1 General

Industrial landfills shall be planned and designed by ~~professional engineers~~ a Professional Engineer registered in Delaware. Planning and design of these facilities shall be consistent with the declared purpose and intent and in accordance with the provisions of this regulation and based on empirically derived data and state of the art technology.

6.2.2 Minimum design requirements

All industrial landfills shall be designed to minimize contaminant releases and to prevent significant adverse impacts on human health or the environment and include at least the following:

6.2.2.1 A setback area, including a buffer zone with appropriate screening, if deemed necessary by the Department.

6.2.2.2 A liner that meets the requirements of Section 6.3.

6.2.2.3 Leachate collection, treatment and disposal, and monitoring systems that meet the requirements of Section 6.4.

6.2.2.4 A gas control system, if deemed necessary by the Department. This system shall meet the requirements of Section 6.5.

6.2.2.5 A surface water management system that meets the requirements of Section 6.6.

6.2.2.6 A ~~ground water~~ groundwater monitoring system that meets the requirements of Section 6.7.

6.2.2.7 A capping system that meets the requirements of Section 6.8.

6.3 Liner

6.3.1 General provisions

6.3.1.1 An impermeable liner shall be provided at all industrial landfills to restrict the migration of leachate from the landfill and to prevent contamination of the underlying ~~ground water~~ groundwater.

6.3.1.2 The Department reserves the right to set a more stringent liner requirement when it determines ~~Determines~~ that a composite liner is not sufficient to protect human health and the environment.

6.3.1.3 The bottom of the liner (of the secondary liner, in a double liner system) shall be at least five (5) feet above the seasonal high water table, as measured in the uppermost aquifer beneath the landfill. Existing landfills or lateral expansions that have physically commenced construction before **[INSERT DATE 21 DAYS AFTER PUBLICATION IN STATE REGISTER]** may continue to operate or construct lateral expansions under previous Department approvals. ~~This 5-foot requirement may be reduced by the Department if a more stringent liner system is used.~~

6.3.1.4 All liners shall be prepared, constructed, and installed in accordance with a quality assurance plan included in the engineering report [Section 4.2.1.4] and approved by the Department. For synthetic liners, the plan shall incorporate the manufacturer's recommendations. ~~Qualifications of the construction quality assurance staff (CQA) and the geosynthetics installer, including master seamers, on-site supervisor, and construction quality control (CQC) personnel, shall be submitted to the Department for review prior to their performing these duties on site~~.

6.3.1.5 Qualifications of the construction quality assurance staff (CQA) and the geosynthetics installer, including master seamers, on-site supervisor, and construction quality control (CQC) personnel, shall meet the requirements of the approved Quality Assurance plan and be submitted to the Department for review prior to their performing these duties on site. ~~All conformance and destructive samples taken as part of the construction quality assurance plan shall be tested at an independent laboratory which is accredited by the Geosynthetics Institute's Laboratory Accreditation Program (by applicable test method) or other accreditation program acceptable to the Department.~~

6.3.1.6 All conformance and destructive samples taken as part of the construction quality assurance plan shall be tested at an independent laboratory which is accredited by the Geosynthetics Institute's Laboratory Accreditation Program (by applicable test method) or other accreditation program acceptable to the Department.

6.3.2 Liner characteristics

6.3.2.1 Composite liner~~. A composite liner must have, as a minimum:~~ A composite liner must have, as a minimum:

6.3.2.1.1 A primary (upper) liner which meets the following:

6.3.2.1.1.1 Is at least 45 mils thick. Geomembrane liner components consisting of high density polyethylene (HDPE) must be at least 60 mils thick for all new cells that begin physical construction after **[INSERT DATE 21 DAYS AFTER PUBLICATION IN STATE REGISTER]**.

6.3.2.1.1.2 Is constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeological forces), physical contact with the leachate to which it is exposed, climatic conditions, the stresses of installation, and the stresses of daily operation.

6.3.2.1.1.3 ~~Is made of synthetic material that meets minimum requirements of the National Sanitation Foundation's publication, "Standard Number 54-1993, Flexible Membrane Liners" for membrane materials covered by this standard, or of other materials of equal~~

~~or better performance as approved by the Department.~~ Is manufactured in accordance with formal Manufacturing Quality Control (MQC) and Manufacturing Quality Assurance (MQA) processes designed to produce geosynthetic material which meet or exceed project specifications when tested in accordance with Geosynthetic Research Institute test methods or other nationally recognized standards approved by the Department.

6.3.2.1.1.4 Is chemically resistant to the waste and leachate managed at the facility, as demonstrated by applicable ASTM standards or other nationally recognized test methods approved by the Department. ~~The EPA Test Method 9090 shall be performed using a solid waste leachate (a synthetic leachate mix approved by the Department may be substituted if existing leachate is not available). The specified physical parameters shall be tested before and after liner exposure. Any significant change in test properties shall be considered to be indicative of incompatibility.~~

6.3.2.1.1.5 Is compounded from first quality virgin materials. No reground or reprocessed materials containing encapsulated scrim shall be used in the manufacturing of the liner.

6.3.2.1.1.6 Is free of pinholes, blisters, holes, and contaminants, which include, but are not limited to, wood, paper, ~~metal~~ metal, and nondispersed ingredients.

6.3.2.1.2 A secondary (lower) liner composed of:

6.3.2.1.2.1 Compacted clay at least two feet thick with a hydraulic conductivity no greater than 1 x 10^{-7} cm/sec, or

6.3.2.1.2.2 An equivalent material acceptable to the Department.

6.3.2.2 Natural liner

6.3.2.2.1 Use of natural material for liners is restricted to those areas where:

6.3.2.2.1.1 Underlying ~~ground water~~ groundwater is not used and is not reasonably expected to be used for water supplies, and

6.3.2.2.1.2 The landfill subbase is subject to compaction and settlement such that a synthetic membrane would not be feasible.

6.3.2.2.2 A natural liner must meet the following requirements as a minimum:

6.3.2.2.2.1 It shall consist of compacted clay or equivalent material having a hydraulic conductivity no greater than 1 x 10^{-7} cm/sec.

6.3.2.2.2.2 The material shall be at least five (5) feet thick, and thicker if ~~necessary~~ necessary, to prevent any leachate from migrating through the liner at any time during the ~~tive~~ active life and through the ~~postclosure~~ post-closure care period of the facility.

6.3.2.2.2.3 The material proposed for use shall be tested by ASTM or equivalent methods for the following:

~~Cation exchange capacity~~
~~Classification~~
~~Compaction~~
~~Grain size~~
~~Hydraulic conductivity~~
~~Mineralogy (if required)~~
~~pH~~
~~Pinhole test (if required)~~
~~Porosity~~
~~Specific gravity~~

6.3.2.2.2.3.1 Cation exchange capacity
6.3.2.2.2.3.2 Classification
6.3.2.2.2.3.3 Compaction
6.3.2.2.2.3.4 Grain size
6.3.2.2.2.3.5 Hydraulic conductivity
6.3.2.2.2.3.6 Mineralogy (if required)
6.3.2.2.2.3.7 pH
6.3.2.2.2.3.8 Pinhole test (if required)
6.3.2.2.2.3.9 Porosity
6.3.2.2.2.3.10 Specific gravity

All data shall be submitted to the Department prior to construction.

6.3.2.2.2.4 Testing of the saturated hydraulic conductivity and the effect of leachate on soil hydraulic conductivity shall be performed in accordance with test methods described in the most current version of "Test Methods for Evaluating Solid Waste,

Physical/Chemical Methods", EPA Publication SW-846 ~~[Third Edition (November 1986), as amended by Updates I (dated July 1992), II (dated September 1994), IIA (dated August 1993), IIB (dated January 1995), III (dated December 1996), and IIIA (dated April 1998)],~~ or other tests approved in writing by the Department.

6.3.2.2.2.5 If onsite soils are to be used as a natural liner, the uppermost five (5) feet of soil shall be excavated and recompacted to ensure homogeneity of the liner, provided, however, that with respect to dredge spoil soils, the excavation and recompaction requirement shall not apply if the applicant can demonstrate that the dredge spoil soils have acceptable characteristics as indicated above.

6.3.2.3 Double liner system. A double liner system shall meet the following requirements:

6.3.2.3.1 It shall consist of two single liners separated by a drainage layer containing a leak detection system.

6.3.2.3.2 The primary (top) liner shall be a synthetic liner which is at least ~~30~~ 45 mils thick and which meets the requirements of Section ~~6.3.2.1.1.2 - 6.3.2.1.1.6~~ 6.3.2.1.1.1 through 6.3.2.1.1.6.

6.3.2.3.3 The secondary (bottom) liner may be either synthetic or natural. If synthetic, it must be at least ~~30~~ 45 mils thick and must meet the requirements of Section ~~6.3.2.1.1.2 - 6.3.2.1.1.6~~ 6.3.2.1.1.1 through 6.3.2.1.1.6. If natural, it must meet the requirements of Section 6.3.2.2.

6.3.2.3.4 The drainage layer separating the two liners shall consist of at least 12 inches of soil having a hydraulic conductivity greater than 1×10^{-2} cm/sec based on laboratory and field testing. Alternate material may be used for the drainage layer with prior written approval of the Department.
~~Alternate material may be used for the drainage layer with prior written approval of the Department.~~

6.3.2.3.5 The leak detection system shall be capable of detecting and intercepting liquid within the drainage layer and conveying the liquid to a collection sump or monitoring point where the quantity of flow can be measured and the liquid can be sampled. The operator or designer shall calculate the Action Leakage Rate. The proposed Action Leakage Rate and a response plan if the Action Leakage Rate is exceeded shall be submitted to the Department for approval before construction of the liner is permitted. The system shall be designed to operate without clogging through the ~~postclosure~~ post-closure care period of the facility.

6.3.2.3.6 The upper synthetic liner membrane shall be underlain by either a geosynthetic clay or 2 feet of natural material with a permeability no greater than ~~10^{-7}~~ 10^{-7} cm/sec. Alternate liner designs may be used with prior written approval of the Department.

Alternate liner designs may be used with prior written approval of the Department.

6.3.3 Liner construction

6.3.3.1 Construction/installation of composite liner

6.3.3.1.1 At least 15 working days prior to installation of the liner, the owner or operator shall notify the Department of the installation date.

6.3.3.1.2 The liner shall be installed upon a subbase which meets the following requirements:

6.3.3.1.2.1 It shall be capable of supporting the loads and withstanding the stresses that will be imposed on it through the active life and ~~postclosure~~ post-closure care period of the facility and of resisting the pressure gradient above and below the liner caused by settlement, compression, or uplift.

6.3.3.1.2.2 It shall have a smooth surface that is free of all rocks, stones, roots, sharp objects, or debris of any kind.

6.3.3.1.2.3 It shall be certified in writing by the liner installer as an acceptable subbase for the liner. Written certification of acceptability shall be submitted to the Department prior to installation of the liner. However, submittal of written acceptance may proceed incrementally according to installation schedule.

6.3.3.1.3 The minimum post-loading slopes of the liner shall either be:

6.3.3.1.3.1 ~~two~~ Two (2) percent on controlling slopes and one-half (0.5) percent on remaining slopes, OR

6.3.3.1.3.2 ~~the~~ The controlling and remaining slopes shall be designed to prevent the head on the liner, excluding sump areas, from exceeding a depth of twelve (12) ~~inches~~ inches, including post settlement conditions.

6.3.3.1.4 The landfill shall be designed to minimize penetrations through the liner. If a penetration is essential, a liquidtight seal must be accomplished between the penetrating structure and the

synthetic membrane. Compaction of areas adjacent to the penetrating structure shall be to the same density as the surrounding soil to minimize differential settlement. Sharp edges on the penetrating structure must not come in contact with the synthetic material.

6.3.3.1.5 Bridging or stressed conditions in the liner shall be avoided with proper slack allowances for shrinkage of the liner during installation and before the placement of a protective soil layer.

6.3.3.1.6 Synthetic liners shall have factory and field seams that equal or exceed the strength requirements stipulated in the project specification. Strength requirements shall be demonstrated in accordance with applicable Geosynthetic Research Institute and ASTM test methods in accordance with the Construction Quality Assurance Plan for the project and all ~~defined by the National Sanitation Foundation's "Standard Number 54-1993" for that liner material. All~~ seams must be visually inspected and tested along their entire length for seam continuity using suitable nondestructive techniques. Other nationally recognized standards may be used with prior approval from the Department. ~~Seams shall also be tested for strength, at a frequency specified in the quality assurance plan.~~ In addition, field seams shall meet the following requirements:

6.3.3.1.6.1 Field seaming shall provide a dry sealing surface.

6.3.3.1.6.2 Seaming shall not be done when ~~wind~~ windy conditions prevail.

6.3.3.1.6.3 Seams shall be made and bonded in accordance with the supplier's recommended procedures.

6.3.3.1.7 Proper equipment shall be used in placing drainage material over the synthetic liner to avoid stress.

6.3.3.1.8 The synthetic membrane shall be protected from the waste by at least two (2) feet of drainage material incorporating the leachate collection system.

6.3.3.1.9 The synthetic membrane must be underlain by a secondary liner as described in Section 6.3.2.1.2.

6.3.3.2 Construction of natural liner

6.3.3.2.1 All lenses, cracks, channels, root holes, or other structural nonuniformities that can increase the saturated hydraulic conductivity above 1 x 10^{-7} cm/sec shall be removed.

6.3.3.2.2 Natural liners shall be constructed in lifts not exceeding six (6) inches after compaction to maximize the effectiveness of the compaction throughout the lift thickness. Each lift shall be properly interfaced by scarification between lifts to ensure the bonding.

6.3.3.2.3 Clods shall be broken up and the material shall be homogenized before compaction of each lift using mixing devices such as pug mills or rotary tillers.

6.3.3.2.4 The maximum slope of the sidewalls shall not be so great as to preclude effective compaction.

6.3.3.3 Construction/installation of double liner

6.3.3.3.1 The secondary liner shall be constructed in accordance with Section 6.3.3.2 (if it is a natural liner) or Section ~~6.3.3.1.1 - 6.3.3.1.7~~ 6.3.3.1.1 through 6.3.3.1.7 (if it is synthetic).

6.3.3.3.2 The primary liner shall be constructed in accordance with Section 6.3.3.1.1 and ~~6.3.3.1.3 - 6.3.3.1.8~~ 6.3.3.1.3 through 6.3.3.1.8.

6.4 Leachate Collection, Treatment, Disposal, And Monitoring

6.4.1 General provisions

6.4.1.1 All industrial landfills shall be designed and constructed to include a leachate collection system, a leachate treatment and disposal system, and a leachate monitoring system. Existing landfills or lateral expansions that have physically commenced construction before **[INSERT DATE 21 DAYS AFTER PUBLICATION IN STATE REGISTER]** may continue to operate or construct lateral expansions under previous Department approvals.

6.4.1.2 The leachate systems shall be constructed, installed, and maintained in accordance with the Department approved quality assurance plan.

6.4.1.3 The owner or operator shall keep and maintain documentation for the quality assurance procedures through the ~~postclosure~~ post-closure care period of the facility.

6.4.2 Leachate collection

6.4.2.1 Minimum design specifications

6.4.2.1.1 The leachate collection system shall be designed to operate without clogging through the ~~postclosure~~ post-closure care period of the facility.

6.4.2.1.2 All elements of the system (pipes, sumps, pumps, etc.) shall be sized according to water balance calculations and shall be capable of handling peak flows.

6.4.2.1.3 Collection pipes shall be sized and spaced to efficiently remove leachate from the bottom of the waste and the side walls of the cell. The capacity of the mains shall be at least equal to the sum of the capacities of the laterals.

6.4.2.1.4 The pipes shall be designed to withstand the weight, stresses, and disturbances from the overlying wastes, waste cover materials, equipment operation, and vehicular traffic.

6.4.2.1.5 The collection pipes shall be designed to drain by gravity to a sump system. Sumps must function automatically and shall contain a conveyance system for the removal of leachate.

6.4.2.1.6 Manholes or cleanout risers shall be located along the perimeter of the leachate collection system. The number and spacing of the manholes shall be sufficient to insure proper maintenance of the system by water jet flushing or an equivalent method.

6.4.2.1.7 Innovative leachate collection systems incorporating alternative designs may be used, after approval by the Department, if they are shown to be equivalent to or more effective than the specified design.

6.4.2.1.8 The leachate collection system must be designed and operated to prevent the leachate head on the liner from exceeding a depth of 12 inches.

6.4.2.2 Construction standards

6.4.2.2.1 ~~The leachate collection system shall be installed immediately above an impermeable liner and at the bottom of a drainage layer. The drainage layer shall be at least 12 inches thick with a hydraulic conductivity not less than $1x10^{-2}$ cm/sec and a minimum post-loading controlling slope of two (2) percent.~~

~~Alternate materials may be used for the drainage layer, with prior written approval of the Department.~~

The leachate collection system shall be installed immediately above an impermeable liner and at the bottom of a drainage layer. The drainage layer shall be at least 12 inches thick with a hydraulic conductivity not less than $1x10^{-2}$ cm/sec and a minimum post-loading controlling slope of two (2) percent.

Alternate materials may be used for the drainage layer, with prior written approval of the Department.

6.4.2.2.2 The following tests shall be performed on the soil proposed for use in the drainage layer, and all data shall be submitted to the Department prior to construction of the drainage layer. These tests shall be performed in accordance with current ASTM, AASHTO, or equivalent methods.

~~Classification~~
~~Porosity~~
~~Relative density or compaction~~
~~Specific gravity~~
~~Hydraulic conductivity~~

6.4.2.2.2.1 Classification
6.4.2.2.2.2 Porosity
6.4.2.2.2.3 Relative density or compaction
6.4.2.2.2.4 Specific gravity
6.4.2.2.2.5 Hydraulic conductivity

6.4.2.2.3 The leachate collection system and manholes or cleanout risers shall be constructed of materials that can withstand the chemical attack that results from leachates.

6.4.2.3 Operational procedures

6.4.2.3.1 The leachate collection system shall operate automatically whenever leachate is present in the sump to remove accumulated leachate.

6.4.2.3.2 Inspections shall be conducted weekly to verify proper functioning of the leachate collection system and to detect the presence of leachate in the removal sump. The owner or operator shall keep records on the system to provide sufficient information that the leachate collection system is functional and operating properly. The amount of leachate collected from each cell shall be recorded on a weekly basis.

6.4.2.3.3 Collection lines shall be cleaned according to a Department approved scheduled maintenance program and more frequently if required.

6.4.2.3.4 Owners or operators of industrial landfills shall inspect for leachate seeps at least once each operating day and shall maintain records of the results of these inspections and of any response actions necessary to prevent leachate from contaminating surface water.

6.4.3 Leachate treatment and disposal

The permittee must maintain all necessary permits and approvals for leachate storage and discharge activities.

6.4.3.1 The leachate treatment and disposal system shall be designed in accordance with one of the following options:

6.4.3.1.1 Complete treatment onsite with or without direct discharge to surface ~~water~~ water;

6.4.3.1.2 Pretreatment onsite with discharge to an offsite treatment works for final ~~treatment~~ treatment;

6.4.3.1.3 Storage onsite with discharge to an offsite treatment works for complete ~~treatment~~ treatment;

6.4.3.1.4 Direct discharge to an offsite treatment ~~works~~ works; or

6.4.3.1.5 Pretreatment on site with discharge on site.

~~The permittee must maintain all necessary permits and approvals for leachate storage and discharge activities.~~

6.4.3.2 Leachate storage prior to treatment shall be within tanks constructed and installed in accordance with the following standards:

6.4.3.2.1 The tank shall be placed above ground.

6.4.3.2.2 The storage tank shall be designed in accordance with American Petroleum Institute (API), Underwriters Laboratory (UL), or an equivalent standard appropriate to the material being used, and shall be constructed of or lined with material which has a demonstrated chemical resistance to the leachate.

6.4.3.2.3 The storage tank area shall have a liner capable of preventing any leachate which may escape from the tank from coming into contact with the underlying soil.

6.4.3.2.4 Secondary containment shall be required for all leachate storage tanks and the outer containment wall shall be compatible with, and capable of containing, the leachate stored. If not roofed or otherwise protected from the accumulation of precipitation, the secondary containment ~~The storage tank area shall be surrounded by a berm, and the bermed~~ area shall have a capacity at least ten percent greater than the capacity of the tank, and shall be equipped with a manually-controlled pump, or gravity drain, to remove precipitation. A double-walled leachate storage tank may be used to fulfill the requirements for secondary containment if the tank is installed with over-fill prevention and leak detection devices that are continuously monitored.

6.4.3.2.5 All storage tanks shall be equipped with a venting system.

6.4.3.2.6 All storage tanks shall be equipped with a high liquid level alarm or warning device. The alarm system shall be wired to the location where assistance will be available to respond to the emergency.

6.4.3.3 Onsite complete treatment or pretreatment facilities shall be designed and constructed in accordance with the following:

6.4.3.3.1 Onsite treatment units shall be designed based on the results of a treatability study, the results of the operations of a pilot plant, or written information documenting the performance of an equivalent leachate treatment system.

6.4.3.3.2 Onsite treatment units shall be designed and constructed by staging of the units to allow for online modification of the treatment system to account for variability of the leachate quality and quantity.

6.4.3.4 For all leachate discharges planned for publicly owned treatment works (POTW), the owner or operator of the landfill shall notify the receiving POTW of intent to discharge leachate into the collection system and shall provide the POTW with analysis of the leachate as required by the POTW.

6.4.3.5 All leachate treatment and disposal systems shall be designed and constructed to control odors.

6.4.3.6 Residuals from the onsite treatment and disposal systems shall be sampled and analyzed for hazardous waste characteristics in accordance with Delaware's Regulations Governing Hazardous Waste.

6.4.3.7 Recirculation of leachate may be allowed, subject to approval by the Department, to accelerate decomposition of the waste. At new facilities and expansions of existing facilities, recirculation ~~Recirculation~~ will be allowed only in areas constructed with a composite liner system or a double liner system. The method of recirculation must be approved by the Department in advance and annually so long as the recirculation continues. Records of leachate collected and recirculated

must be kept and reported and any resultant problems reported to the Department and remedied as soon as practicable and included in the annual report.

6.4.4 Leachate monitoring

6.4.4.1 The leachate monitoring system shall be capable of measuring the quantity of the flow and sampling the leachate from each landfill cell. The volume of leachate collected from each cell shall be determined at least monthly and reported quarterly.

6.4.4.2 Leachate monitoring of the influent and effluent of the treatment and disposal system shall be performed according to a Department approved plan which includes quality control and quality assurance procedures.

6.4.4.3 Samples of leachate effluent and influent shall be analyzed as specified by the Department. The parameters to be analyzed will depend on the characteristics of the waste.

6.4.4.4 Leachate monitoring results shall be submitted to the Department as required.

6.4.4.5 For a double liner system, if the Action Leakage Rate of the leak detection system is exceeded, the owner or operator of the landfill shall notify the Department within five (5) working days. The owner or operator shall also sample and analyze the liquid in the leak detection system for parameters required by the Department.

6.4.4.6 Test methods used to determine the parameters of Section 6.4.4.3 shall be those described in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, or other tests approved in writing by the Department.

6.5 Gas Control

6.5.1 General provisions

6.5.1.1 Gas control systems shall be installed at industrial landfills where the materials landfilled would be expected to produce gas through biological activity or reaction.

6.5.1.2 The gas control system shall be designed and constructed to:

6.5.1.2.1 Evacuate gas from within the waste to prevent the accumulation of gas onsite or ~~offsite,~~ offsite;

6.5.1.2.2 Prevent and control damage to ~~vegetation,~~ vegetation; and

6.5.1.2.3 Prevent odors from the facility being detectable at the facility property line in sufficient quantities to cause or create a condition of air pollution.

6.5.1.3 The concentration of landfill gas in facility structures (except gas recovery system components) ~~and at the facility boundary~~ shall not exceed 25% of the lower explosive limit (LEL). The concentration of landfill gas at the facility boundary shall not exceed the LEL.

6.5.2 Design and construction standards

6.5.2.1 The owner or operator of an industrial landfill shall consider both active and passive gas control systems and shall provide an evaluation of the proposed system for Department approval.

6.5.2.2 The owner or operator shall perform an analysis to establish the required spacing of gas control vents to provide an effective system.

6.5.2.3 The gas control system shall be designed to evacuate gas from all levels within the waste.

6.5.2.4 The system shall not interfere with or cause failure of the liner or leachate systems.

6.5.3 Monitoring

6.5.3.1 A sufficient number of gas monitoring wells shall be installed to evaluate gas production rates in the landfill.

6.5.3.2 The owner or operator shall sample the gas monitoring wells and provide analytical results as required by conditions specified in the facility permit.

6.5.3.3 At landfills utilizing natural liners, gas monitoring probes must be installed in the soil outside the lined area to evaluate any lateral migration of landfill gas.

6.5.3.4 Emissions from active and passive gas control systems may require a permit from the ~~Air Resources Section of the Division of Air and Waste Management~~ Division of Air Quality.

6.6 Surface Water Management

6.6.1 General provision. An owner or operator of an industrial landfill shall design, construct, and maintain a surface water management system to:

6.6.1.1 Prevent erosion of the waste and ~~cover,~~ cover;

6.6.1.2 Prevent the collection of standing ~~water,~~ water; and

6.6.1.3 Minimize surface water runoff onto and into the waste.

6.6.2 Design requirements

An owner or operator of an industrial landfill shall include:

6.6.2.1 A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 24-hour, 25-year storm.

6.6.2.2 The surface water management system shall be designed to control, at a minimum, the runoff from the discharge of a ~~2-hour, 10-year~~ 24-hour, 25-year storm. The system shall be designed to include:

~~6.6.2.3 The system shall be designed to include:~~

6.6.2.3.1 Detention basins to provide temporary storage of the expected runoff from the design storm with sufficient reserve capacity to contain accumulated precipitation and sediment prior to discharge.

6.6.2.3.2 Diversion structures designed to prevent runoff generated within the active cells from moving off site of the lined areas.

6.6.3 Surface water monitoring

The surface water monitoring frequency and parameters to be analyzed shall depend upon the characteristics of the waste and shall be specified by the Department. The Department reserves the right to substitute surface water monitoring required under regulations other than DRGSW for this requirement.

6.6.4 Channeling of runoff

6.6.4.1 Runoff from the active cell(s) must be channeled to the leachate treatment and disposal system.

6.6.4.2 Runoff from the unused portion of the active cell(s) that has not been in contact with waste can be channeled to the detention basins or other approved sedimentation control device with prior written approval from the Department.

6.6.4.3 Runoff from closed cells will be directed to the detention basins or other approved sedimentation control systems.

6.6.5 Discharge ~~from the detention basins shall be in compliance with all applicable federal and state regulations.~~

The construction of and discharge from detention basins and other surface water management systems shall be in compliance with all applicable federal and state regulations.

6.6.6 Stormwater Plan.

Owners or operators of all industrial landfills shall develop and maintain a Stormwater Plan (SWP) (also known as a Stormwater Pollution and Prevention Plan (SWPPP)) for areas associated with the landfill facility. The SWP/SWPPP shall describe stormwater management controls and practices in-place or planned for the facility and shall identify potential sources of pollutants which may reasonably be expected to affect the quality of stormwater discharges from landfill operations and site maintenance. The SWP/SWPP need not address construction activities regulated by a Sediment and Stormwater Plan Approval issued by the Department. An initial plan shall be submitted to the Department no later than **[INSERT DATE 180 DAYS AFTER PUBLICATION IN THE STATE REGISTER]**. SWP/SWPPP plans created under regulations other than DRGSW can be substituted for this requirement provided the plan includes the following:

6.6.6.1 Facility identification, including the name, business address, and contact information for the person responsible for development, implementation, maintenance and revision of the SWP/SWPPP.

6.6.6.2 Facility assessment, including a facility description and narrative describing all activities and potential sources of pollutants that may reasonably be expected to add pollutants to stormwater discharges. Examples include the following activities and potential sources when they are exposed to stormwater: Loading and unloading areas, outdoor storage or processing areas, vehicle/equipment maintenance areas, fueling areas, and liquid storage tanks (including secondary containment areas). The facility assessment shall also identify discharge points from these activities and potential sources of pollutants.

6.6.6.3 Facility map. All markings and delineations on the map shall be clearly identifiable. The map shall identify all areas where solid wastes are stored or disposed, all buildings, areas where industrial materials are stored, the drainage areas associated with each stormwater discharge from the facility, all stormwater related drainage and discharge structures including all conveyances and appurtenances, any structural stormwater controls (i.e. basins, secondary containments, and stormwater diversions), all surface waters that receive stormwater discharges from the facility, and directions of stormwater flow. The map shall also include locations of the following activities if such activities are exposed to precipitation: fueling stations, vehicle and equipment maintenance or cleaning areas, liquid storage tanks and areas where leachate can be transferred into vehicles for off-site disposal. If contaminated runoff from adjacent facilities is suspected, that should also be included on the map.

6.6.6.4 Stormwater management at the facility. The SWP/SWPPP shall describe stormwater management controls and practices appropriate to control potential pollutants identified in the facility assessment. The SWP/SWPPP must describe the location and use of structural controls (both existing and planned), as well as non-structural controls such as best management

practices, industrial material management, spill prevention/response, erosion control, and periodic inspections.

6.6.7 Maintenance on surface water management systems shall be done in accordance with any post-construction requirement from the Division of Watershed Stewardship and conditions specified within the Solid Waste permit.

6.6.8 An initial periodic report for all completed surface water management systems shall be prepared and signed by a Professional Engineer registered in Delaware no later than **[INSERT DATE 12 MONTHS AFTER PUBLICATION IN STATE REGISTER]**. Subsequent periodic reports shall be submitted every five (5) years. The report shall at a minimum include:

6.6.8.1 A description of currently installed surface water management systems

6.6.8.2 Maps depicting the locations of surface water management systems and surface water flow through the facility to the point of discharge

6.6.8.3 Recommendations for continued operations and maintenance

Modifications to a surface water management system or part of a surface water management system may require approval from other state or federal agencies.

6.7 ~~Ground Water~~ Groundwater Monitoring And Corrective Action

6.7.1 General provision

Owners or operators of all industrial landfill facilities shall maintain and operate a ~~ground water~~ groundwater monitoring program to evaluate facility impact upon ~~ground water~~ groundwater quality.

6.7.2 Design and construction of monitoring system

6.7.2.1 The ~~ground water~~ groundwater monitoring system shall be designed by, constructed under the direction of, and attested to by, a Professional Geologist registered in Delaware.

6.7.2.2 The system shall consist of a sufficient number of wells, installed at appropriate locations and depths, to define the ~~ground water~~ groundwater flow system and shall be developed in accordance with Departmental requirements to yield ~~ground water~~ groundwater samples that are representative of the aquifer water quality, both unaffected by (background), and potentially impacted by, downgradient contaminant leakage from the facility.

6.7.2.3 The number, spacing, location, depth, and screened interval of the monitoring wells shall be approved by the Department prior to installation.

6.7.2.4 All monitoring wells shall be constructed in accordance with the Regulations Governing the Construction and Use of Wells and any subsequently approved guidelines. Variation from the existing guidelines must be approved by the Department in writing prior to construction.

6.7.3 ~~Ground water~~ Groundwater sampling

6.7.3.1 The permittee shall submit a ~~ground water~~ groundwater sampling plan to the Department at the time of permit application. The sampling plan submitted at the time of the application, and all revisions to the sampling plan, must be certified by a Professional Engineer or Professional Geologist registered in Delaware, that the modifications do not cause increased risks to human health or the environment. The Department reserves the right to allow a variance to this requirement for modifications deemed minor. The sampling plan must include procedures and techniques for:

6.7.3.1.1 Sample collection, preservation, and transport:

6.7.3.1.1.1 Samples will be collected at low flow rates (<1 l/min) to minimize turbidity of the samples.

6.7.3.1.1.2 Samples will be field filtered only when turbidity exceeds 10 NTU. Repeated sampling of any well where turbidity exceeds 10 NTU is not permitted without Department approval. Approval will only be granted in cases where turbidity cannot be controlled by careful well construction, ~~development~~ development, and sampling.

6.7.3.1.2 Analytical procedures and quality ~~assurance,~~ assurance; and

6.7.3.1.3 Chain of custody control.

6.7.3.2 Sample constituents

6.7.3.2.1 The parameters to be analyzed shall depend upon the characteristics of the waste and shall be specified by the Department.

6.7.3.2.2 Test methods used to determine the parameters of Section 6.7.3.2.1 shall be those described in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication Number SW-846~~, Third Edition (November 1986), as amended by Updates I (dated July 1992), II (dated September 1994), IIA (dated August 1993), IIB (dated January 1995), III (dated December 1996), and IIIA (dated April 1998),~~ or other tests approved in writing by the Department.

6.7.3.2.3 Water levels will be measured prior to sample collection.

6.7.3.3 The Department may observe, and may request advance notice of, the ~~ground water~~ groundwater sampling conducted by the permittee or his/her designee and may request split samples for analysis.

6.7.3.4 If the Department determines that the ~~ground water~~ groundwater monitoring data indicate that ~~ground water~~ groundwater contamination has occurred, a remedial action program may be required.

6.7.4 Data evaluation

6.7.4.1 The owner or operator must establish the background quality for each sampling parameter or constituent. The background quality is that which would be expected with no impact by contaminant releases from the waste cells.

6.7.4.2 Methods for Data Evaluation

6.7.4.2.1 The owner or operator must specify in the operating record the methods to be used for statistical evaluation of the monitoring data. These may include:

6.7.4.2.1.1 A parametric analysis of variance followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

6.7.4.2.1.2 An analysis of variance based on ranks followed by multiple comparison procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

6.7.4.2.1.3 A tolerance or prediction interval procedure in which a range for each constituent is established from the distribution of the background data and the level of each constituent in each compliance (downgradient) monitor well is compared to the upper tolerance or prediction limit,

6.7.4.2.1.4 A control chart approach that plots concentrations of each constituent versus the background range, or

6.7.4.2.1.5 Any other statistical method chosen to meet the following requirements and approved by the Department:

6.7.4.2.1.5.1 Appropriate in distribution and number of available data to meet the requirements of the statistical test chosen;

6.7.4.2.1.5.2 Capable of limiting individual constituent comparisons to Type I error levels less than 0.01 or multiple constituent comparisons to Type I error levels less than 0.05, for each testing period. (This requirement does not apply to tolerance intervals, prediction intervals, or control charts.)

6.7.4.2.2 Alternate methods may be used with prior written approval from the Department.

6.7.4.3 If necessary, the statistical analysis method shall include procedures to control or correct for seasonal and spatial variability, as well as temporal correlation in the data.

6.7.4.4 The owner or operator must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the monitoring program by comparisons using the chosen method of evaluation. This evaluation must be performed within a reasonable period of sampling and analysis normally within 30 days of obtaining sampling results.

6.7.4.5 If any statistically significant increase occurs, the permittee must:

6.7.4.5.1 Notify the Department and place the result in the operating record within 14 days, and

6.7.4.5.2 Assess the probable accuracy and possible risk associated with the finding in the annual report.

6.7.4.6 Performance standards will be established at each site which are intended to provide adequate protection for human health and the environment. The performance standards may be proposed by the permittee, but must be approved by the Department, and shall be incorporated in the facility permit. In general, performance standards will be the maximum contaminant levels (MCLs) for public drinking water. However, the Department may specify performance levels which are more stringent to protect adjacent surface water (and prevent violation of surface water quality standards) or less stringent (where groundwater at the site will not threaten existing or reasonably expected sources of drinking water or cause violation of surface water quality standards) as appropriate.

6.7.4.7 If any release of contaminants from the landfill to the groundwater is detected, either by exceedance of background concentrations or violation of a performance standard in the downgradient wells (points of compliance), the owner or operator must:

6.7.4.7.1 Notify the Department and place the result in the operating record within 14 days,

6.7.4.7.2 Resample to confirm the result and/or demonstrate that the result was an error or that the increase was due to a source other than the permitted waste facility within 90 days,

6.7.4.7.3 Notify the Department of the result of confirmation within 14 days of availability of the result, and

6.7.4.7.4 If a release is confirmed, perform an assessment of corrective measure as described in Section 6.7.6.

6.7.5 Reporting

6.7.5.1 All ~~ground water~~ groundwater**,** leachate, and gas monitoring shall be conducted on a schedule to be determined by the Department and the results submitted within 60 days of sampling. Reports of any statistically significant increases in downgradient wells or violation of performance standards in wells or streams must be reported to the Department within 14 days as noted above.

6.7.5.2 An annual hydrogeologic monitoring report will be prepared and signed by a Professional Geologist registered in Delaware, ~~which~~ and shall include:

6.7.5.2.1 Tabulation of all leachate flow and quality and ~~ground water~~ groundwater quality data from current and preceding ~~years,~~ years;

6.7.5.2.2 Graphical presentation of leachate flow and quality and ~~ground water~~ groundwater quality data from current and preceding years as required in the operating ~~permit,~~ permit;

6.7.5.2.3 Maps showing ~~ground water~~ groundwater flow patterns at each time of ~~ground water~~ groundwater sampling and groundwater monitoring well locations;,

6.7.5.2.4 A discussion of the ~~ground water~~ groundwater monitoring ~~results, and~~ results;

6.7.5.2.5 Identification of any statistically significant increases in wells and/or exceedances of performance standards;

6.7.5.2.6 Confirmation results and conclusions related to the accuracy of these results and/or reasonable explanation for the results;

6.7.5.2.7 An evaluation of the significance of the results including whether they indicate a contaminant release has occurred and any recommendations for corrective measures, if appropriate;

6.7.5.2.8 Groundwater monitoring well activities (e.g., well maintenance, well decommissioning, etc.); and

6.7.5.2.9 Recommendations for ~~future monitoring.~~ any changes in the monitoring program including changes in the number or location of sampling points, sampling frequency, and parameters or procedures.

6.7.5.3 In addition to paper copies of reports, the Department may require all, or part of, any required report to be submitted on machine-readable media in a format mutually acceptable to the Department and the permittee. With the approval of the Department, reports submitted on machine-readable media may be substituted for paper reports.

6.7.6 Assessment of Corrective Measures

6.7.6.1 An assessment (reassessment) of corrective measures by the owner or operator is required (within 90 days) of confirmation of a contaminant release or an exceedance of a performance standard. The owner or operator must perform this assessment which must include:

6.7.6.1.1 Identification of the nature and extent of the release (which may require construction and sampling of additional wells, analysis for additional constituents including those required for leachate, geophysical ~~surveys~~ surveys, and/or other measures);

6.7.6.1.2 Reassessment of contaminant fate and potential contaminant receptors (wells and/or receiving streams);

6.7.6.1.3 Evaluation of feasible corrective measures to:

6.7.6.1.3.1 Prevent exposure to potentially harmful levels of contaminants (exceeding performance standards);

6.7.6.1.3.2 Reduce, ~~minimize~~ minimize, or prevent further contaminant releases; and

6.7.6.1.3.3 Reduce, ~~minimize~~ minimize, or prevent the offsite migration of contaminants.

6.7.6.1.4 The implementability (and time to implement) and costs of the feasible alternatives; and

6.7.6.1.5 Recommendations for remedial action.

6.7.6.2 The owner or operator must present the results of the corrective measures assessment, including a proposed remedy, (with a schedule for initiation and completion) for public comment at a public meeting.

6.7.7 Selection of Remedy

6.7.7.1 Based on the results of the corrective measures assessment and public meeting, the owner/operator will select a remedial action.

6.7.7.2 Remedies must:

6.7.7.2.1 Be protective of human health and the environment;

6.7.7.2.2 Control source(s) of contaminant releases so as to reduce or eliminate (to the maximum extent practicable) further releases of contaminants that pose a threat to human health or the environment;

6.7.7.2.3 Comply with the site performance standards at the points of compliance (to the extent feasible); and

6.7.7.2.4 Comply with standards for the management of wastes.

6.7.7.3 The Department may determine that remediation of a contaminant release is not necessary if the permittee can demonstrate to the satisfaction of the Department (or the Department certifies that it is satisfied) that the ~~ground water~~ groundwater is not currently or reasonably expected to be a source of drinking water, will not migrate so as to threaten a source of drinking ~~water~~ water, or will not cause violation of surface water quality standards (i.e. does not represent a significant threat to human health or the environment).

6.7.8 Implementation of Corrective Action

6.7.8.1 Based on the schedule established under Section 6.7.5.2. for initiation and remediation of remedial activities, the owner or operator must:

6.7.8.1.1 Implement the corrective action remedy;

6.7.8.1.2 Take any interim measures necessary to ensure protection of human health and the environment (such as replacement of contaminated or imminently threatened water supplies); and

6.7.8.1.3 Perform ~~ground water~~ groundwater and/or surface water monitoring to demonstrate the effectiveness of the remedy including whether or not compliance is achieved with the performance standards.

6.7.8.2 If the owner or operator determines, based on information obtained after implementation of the remedy has begun or other ~~information~~ information, that compliance with remediation objectives (including achievement of performance standards) cannot be practically achieved with the remedy selected, the owner or operator must notify the Department and request authorization to proceed with another feasible method consistent with the overall objective of the remedy.

6.7.8.3 If the permittee determines that compliance with remedial action objectives (Section 6.7.7) cannot be practically achieved, the permittee must notify the Department and implement alternate methods to control exposure of humans or the environment to residual contamination and implement alternative control measures.

6.7.8.4 Remedies selected shall be considered complete when:

6.7.8.4.1 All actions required to implement the remedy have been achieved; and

6.7.8.4.2 The ~~ground water~~ groundwater protection standards or alternate requirements agreed upon have been achieved for a period of three years or alternate period approved by the Department.

6.7.8.5 Upon completion of the remedy, the owner or operator must notify the Department that a certification of the remedy has been completed in compliance with the requirement and placed in the operating records. This certification must be signed by a Professional Geologist registered in Delaware.

6.7.8.6 Upon completion of the remedy, the owner or operator will continue ~~ground water~~ groundwater monitoring as required by provisions of Section 6.7.3 and approved by the Department.

6.8 Capping System

6.8.1 Requirement for a capping system

6.8.1.1 Upon closure of the landfill or landfill ~~cell~~ cell, the permittee shall install a capping system that will control the emission of gas (if applicable), promote the establishment of vegetative cover, and minimize infiltration and percolation of water into, and prevent erosion of, the waste throughout the ~~postclosure~~ post-closure care period.

6.8.1.2 The capping system shall be in place 180 days following final waste disposal activity unless the Department approves a longer period of time.

6.8.1.3 The capping system shall extend beyond the edge of the lined area.

6.8.1.4 The proposed design of the capping system must be approved by the Department prior to installation.

6.8.2 Composition of the capping ~~system~~ system.

The capping system shall consist of at least the following components:

6.8.2.1 A final grading layer on the waste, consisting of at least six (6) inches of soil or equivalent material, to attain the final slope and provide a stable base for subsequent system components.

Daily and intermediate cover may be used for this purpose. Alternative materials may be used for the grading layer with prior written approval by the Department.

6.8.2.2 An impermeable layer, consisting of at least:

6.8.2.2.1 A 30 mil geomembrane underlain by a geotextile, or

6.8.2.2.2 24 inches of clay at a hydraulic conductivity of less than 1 x 10^{-7} cm/sec or depth of equivalent material having a hydraulic conductivity less than 1 x 10^{-7} cm/sec, such depth to be determined based on the hydraulic conductivity of 24 inches of clay at a hydraulic conductivity of 1 x 10^{-7} cm/sec.

~~Alternative materials may be used for the impermeable layer with prior written approval of the Department.~~

Alternative materials may be used for the impermeable layer with prior written approval of the Department.

6.8.2.3 A final cover to provide plant rooting and prevent erosion consisting of:

6.8.2.3.1 Eighteen (18) inches of soil to provide rooting depth and moisture for plant growth, and

6.8.2.3.2 Six (6) inches of topsoil or other material approved by the Department to support the proposed vegetation; or

6.8.2.3.3 A suitable layer of alternative material or combination thereof to assure adequate rooting and moisture retention to support the proposed vegetation.

~~The permittee shall propose a suitable vegetation dependent upon the quality and characteristics of the topsoil and compatible with the intended final use of the facility. Maintenance schedules and application rates for fertilizer and mulch shall also be submitted for approval.~~

The permittee shall propose a suitable vegetation dependent upon the quality and characteristics of the topsoil and compatible with the intended final use of the facility. Maintenance schedules and application rates for fertilizer and mulch shall also be submitted for approval.

Alternate materials may be used for the final cover with prior written approval of the Department.

6.8.3 Final slopes

6.8.3.1 The grades of the final slope shall be constructed in accordance with the following minimum standards:

6.8.3.1.1 The final grade of the top slope, after allowing for settlement and subsidence, shall be designed to promote runoff; and

6.8.3.1.2 The final grades of the side slopes shall be, at a maximum, three horizontal to one vertical (3:1).

6.8.3.2 The top and side slopes shall be maintained to prevent erosion of the capping system and to insure complete vegetation cover.

6.9 Landfill Operation And Maintenance Standards

Landfills and landfill cells closed in accordance with DRGSW shall conduct maintenance, recordkeeping, and reporting activities in accordance with Sections 6.10 through 6.12 and the solid waste permit.

6.9.1 General

6.9.1.1 Industrial landfills shall be operated so as to create an aesthetically desirable environment and to preclude degradation of land, air, surface water, or ~~ground water~~ groundwater.

6.9.1.2 Industrial landfills shall be maintained and operated to conform with the approved Plan of Operation.

6.9.2 Details of operation and maintenance

6.9.2.1 Spreading and compacting. The working face shall be confined to the smallest practical area, as is consistent with the proper operation of trucks and equipment. The waste shall be spread in layers and compacted by repeated passes of the compacting equipment to obtain the degree of compaction specified in the Solid Waste permit.

6.9.2.2 Cover. Approved cover material shall be applied at a frequency and thickness specified by the Department.

6.9.2.3 Control of nuisances and hazards.

6.9.2.3.1 Odor: The operation of the landfill shall not result in odors associated with solid waste being detected off site.

6.9.2.3.2 Litter: The scattering of refuse and wind-blown litter shall be controlled by the use of portable fences, natural barriers, or other suitable methods. No refuse or litter shall be allowed to migrate off site.

6.9.2.3.3 ~~6.9.3.2.3~~Dust, fires: The landfill shall be operated in a manner which eliminates, to the extent possible, dust problems and fires. Industrial Landfills must develop and implement a dust control plan in accordance with the Solid Waste permit.

6.9.2.4 Access. Access to the site shall be limited to those persons authorized to use the site for the disposal of solid waste and to those hours when an attendant is on duty. This section shall not be construed to limit right of entry pursuant to 7 **Del.C.** 6024. Access to the site by unauthorized persons shall be prevented by the use of barriers, fences and gates, or other suitable means.

6.9.2.5 Salvaging. Salvaging operations shall be so organized that they will not interfere with the proper disposal of any solid waste. No salvage operation shall be allowed which creates unsightliness, nuisances, health hazards, or potential safety hazards.

6.9.2.6 Personnel. Sufficient numbers and types of personnel shall be available at the site to insure capability for operation in accordance with these regulations.

6.9.2.7 Equipment. Adequate numbers and types of equipment commensurate with the size of the operation shall be available at the site to ~~insure~~ ensure operation of the landfill in accordance with the provisions of these regulations and the plan of operation. Waste handling equipment shall be cleaned routinely and maintained in accordance with the manufacturer's recommendations.

6.9.2.8 Employee health and safety. Employees at the site shall work under all appropriate health and safety guidelines established by the Occupational Safety and Health Administration. The owner or operator of the landfill shall provide suitable shelter, sanitary facilities, and safe drinking water for personnel at the site. A reliable telephone or radio communication system shall be provided for site personnel. First aid equipment shall be available at the site.

6.9.2.9 Weekly Inspections. Weekly inspections shall be conducted by a qualified person at intervals not to exceed seven (7) days. At a minimum, inspections shall include observations for any appearance of actual or potential structural weakness and other conditions that can disrupt the operation or safety of the industrial waste landfill. Results of the weekly inspections shall be maintained per Section 6.9.3. If the operator cannot comply with conducting an inspection within a particular week, the Department shall be notified as to the reason for missing the weekly inspection BEFORE the end of that week. Additionally, the missed weekly inspection shall, nonetheless, be conducted at the earliest possible time the following week. This “post” weekly inspection will not count as that week’s inspection.

6.9.2.10 Annual Inspection. An annual landfill inspection shall be conducted by a Professional Engineer registered in Delaware to evaluate whether the landfill design, construction, operation, and maintenance is consistent with recognized and generally accepted good engineering standards. Reports are to be submitted annually as part of the reporting requirements of Section 6.9.4.

6.9.2.10.1 Inspections. At a minimum, the inspection must include a review of available information regarding the status and condition of the landfill (e.g., inspections within the operating record) and a visual inspection of the landfill to identify signs of distress or malfunction of the landfill.

6.9.2.10.2 Inspection Report. At a minimum, the inspection report must document any changes in geometry of the structure since the previous inspection, any appearances of an actual or potential structural weakness of the landfill, any conditions that are disrupting or have the potential to disrupt the operations and safety of the landfill, and any other changes which may have affected the stability or operation of the landfill since the last inspection.

6.9.3 Recordkeeping. The following information must be recorded, as it becomes available, and retained by the owner or operator at their facility in a format acceptable to the Department and Permittee, for ~~of~~ any new or existing industrial landfill until the end of the ~~postclosure~~ post-closure care period of the landfill:

6.9.3.1 Records demonstrating that liners, leachate control systems, gas control systems, ~~cover,~~ capping system, surface water management systems, and all monitoring systems are constructed or installed in accordance with the design criteria required in Section 6, Subsections 3,4,5,6,7 and ~~8,~~ 8.

6.9.3.2 Monitoring, testing, or analytical data where required by Section 6, Subsections 4,5,6,7, and ~~8,~~ 8.

6.9.3.3 Volume and/or weight of wastes ~~received~~ received.

6.9.3.4 Any report required to be submitted by the Solid Waste Permit.

6.9.3.5 Any additional records specified by the Department.

This information must be made available for inspection, with reasonable notice, by representatives of the Department.

6.9.4 Reporting. The permittee shall submit to the Department on an annual basis a report summarizing facility operations for the preceding calendar year. The report shall describe and summarize all solid waste disposal, environmental monitoring, and construction activities conducted within the year covered by the report. The report shall be prepared under the direction of and signed by the Facility Manager. The report shall include, but not necessarily be limited to, the following:

6.9.4.1 The volume or tonnage of solid waste landfilled at the ~~facility,~~ facility;

6.9.4.2 The estimated total volume of solid waste currently landfilled at the facility;

6.9.4.3 The estimated remaining capacity of the facility, in both tonnage and ~~years,~~ years;

6.9.4.4 Leachate quantity and quality data as required in Section 6.4.4, and in the Solid Waste ~~permit,~~ permit;

6.9.4.5 Gas monitoring data as required in Section 6.5.3, and in the Solid Waste ~~permit,~~ permit;

6.9.4.6 An updated estimate of the cost of closure and ~~postclosure~~ post-closure care for the facility, as required in Section ~~6.10.3.4,~~ 6.10.3.5;

6.9.4.7 Any intentional or accidental deviations from the approved Plan of Operation, and any unusual situations encountered during the ~~year,~~ year; and

6.9.4.8 All construction or corrective work conducted on the site in accordance with approved plans or to achieve compliance with these regulations.

~~The permittee must also submit any additional reports specified in the Solid Waste permit.~~

The permittee must also submit any additional reports specified in the Solid Waste permit.

~~In addition to paper copies of reports, the Department may require all or part of any required report to be submitted on machine-readable media in a format mutually acceptable to the Department and the permittee. With approval of the Department, reports submitted on machine-readable media may be substituted for paper reports.~~

In addition to paper copies of reports, the Department may require documents to be submitted on machine-readable media in a format mutually acceptable to the Department and the permittee. With approval of the Department, reports submitted on machine-readable media may be submitted in lieu of paper reports.

6.9.5 Prohibitions

6.9.5.1 The owner or operator of an industrial landfill shall not knowingly accept for disposal any hazardous waste.

6.9.5.2 Open burning of any solid waste is prohibited within the active portion of the landfill.

6.9.5.3 Scavenging is prohibited on any landfill site.

6.9.5.4 No wastes other than those specified in the permit may be disposed of at the facility.

6.10 Closure

6.10.1 General. The owner or operator of an industrial landfill must close the completed landfill or landfill cell in a manner that:

6.10.1.1 Minimizes the need for further maintenance, and

6.10.1.2 Minimizes the ~~postclosure~~ post-closure escape of solid waste constituents, leachate, and landfill gases to the surface water, ~~ground water~~ groundwater, or atmosphere.

6.10.2 Required submittals; notification

6.10.2.1 An owner or operator of a new industrial landfill must submit a conceptual closure plan for the facility at the time of initial (i.e., construction) permit application.

6.10.2.2 At least 180 days prior to the projected date when wastes will no longer be accepted at the landfill or cell, the landfill owner or operator shall submit to the Department written notification of intent to close the facility or cell, a closure plan, and a closure schedule.

6.10.2.3 If the Department determines that the closure plan and closure schedule are sufficient to ensure closure in accordance with the performance standards described in Section 6.10.1, it will modify the solid waste permit to allow closure to take place.

6.10.2.4 The owner or operator shall not commence closure activities before receiving the necessary modifications to the solid waste permit.

6.10.2.5 A copy of the closure plan must be maintained at the facility or at some other location designated by the owner or operator through the ~~postclosure~~ post-closure care period of the facility.

~~The closure plan for an industrial landfill or cell must include, as a minimum, the following:~~

6.10.3 Closure plan contents.

The closure plan must be certified by a Professional Engineer registered in Delaware. The closure plan for an industrial landfill or cell must include, at a minimum, the following:

6.10.3.1 A description of the methods, procedures, and processes that will be used to close a landfill and each individual cell thereof in accordance with the closure performance standard in Section 6.10.1.

6.10.3.2 A description of the capping system required under Section 6.8. This shall include a description of the system design, the type of cover to be used, and a discussion of how the capping system will achieve the objectives of Section 6.10.1.

6.10.3.3 A description of other activities necessary to satisfy the closure performance standard, including, but not limited to, the removal or disposal of all ~~nonlandfilled~~ non-landfilled wastes located on site (e.g., wastes from landfill runoff collection ponds).

6.10.3.4 An estimate of the maximum inventory of waste on-site over the active life of the landfill

6.10.3.5 An estimate of the cost of closing the facility or cell and of the cost of ~~postclosure~~ post-closure monitoring and maintenance throughout the ~~postclosure~~ post-closure care period. These estimates shall be updated yearly and submitted to the Department as part of the annual report described in Section 6.9.4.

6.10.3.6 A plan for ~~postclosure~~ post-closure care of the facility sufficient to ensure that the standards described in Section 6.10.1 will be met. This will include:

6.10.3.6.1 A description of the monitoring and maintenance activities required and the frequency at which these activities will be performed.

6.10.3.6.2 The name, address, and telephone number of the person or office to contact about the facility during the ~~postclosure~~ post-closure period.

6.10.3.6.3 A description of the planned uses of the property during the ~~postclosure~~ post-closure period.

6.10.3.7 A plan for control and/or recovery of landfill gases, if appropriate.

6.10.3.8 A topographical map of the site showing the proposed post-closure elevation with reference to mean sea level.

6.10.3.9 A closure construction quality assurance plan.

6.10.4 Minimum closure requirements

6.10.4.1 The permittee shall notify the Department at least 30 working days prior to commencing closure activities. The Department shall inspect the site, and the permittee shall perform any corrective work which the Department deems necessary.

6.10.4.2 Finished portions of the landfill shall receive a capping system which meets the requirements of Section 6.8.

6.10.4.3 Finished portions of the landfill shall be planted with appropriate vegetation to promote stabilization of the cover.

6.10.4.4 The closure shall be carried out in accordance with the approved closure plan and according to the approved closure schedule. Any significant deviations from the plan or the schedule must be approved by the Department prior to being initiated.

6.10.4.5 Upon closure of an entire landfill, all nonlandfilled wastes located on site shall be removed or disposed of in a manner approved by the Department.

6.10.4.6 After closure of the facility, the site shall be returned to an acceptable appearance consistent with the surrounding area and the intended use of the land.

6.10.4.7 ~~When~~ Within 30 days of completion of closure of the landfill or a landfill cell ~~is completed~~, the owner or operator shall submit a final report for the Department's approval, unless the Department approves a longer period of time. The final report shall certify that the closure of the landfill or cell was completed in accordance with the closure plan to include the construction quality assurance plan, construction and material specifications, and design drawings. The final report shall be certified correct by the construction quality assurance engineer, who must be a Professional Engineer registered in Delaware. The landfill or cell will not be considered closed until the Department has provided its written notification that the closure construction and the final report meet the requirements of the solid waste permit and these regulations. The Department will inspect the cell or facility and will either:

6.10.4.7.1 Issue a letter of approval to certify that the site has been closed in accordance with the solid waste permit, the closure plan, and all applicable regulations; or

6.10.4.7.2 Determine that the site is not in compliance with the solid waste permit, the closure plan, or applicable regulations; identify the areas of deficiency; and require the owner or operator to take the necessary actions to bring the site into compliance.

6.10.4.8 Facilities entering the post-closure period will be issued a post-closure permit based upon the approved post-closure plan, monitoring requirements, gas and leachate control, ~~maintenance~~ maintenance, and corrective actions (if required).

6.11 Interim-Closure Care

6.11.1 General

6.11.1.1 The owner or operator of an industrial landfill must continue interim-closure care from the time a cell or portion of the industrial landfill is closed in accordance with Sections 6.8 and 6.10 until such time when the Department issues a Closure/Post-Closure Care Permit or a Post-Closure Care Permit.

6.11.1.2 There is no minimum or maximum length of time in which a cell or portion of an industrial landfill can be in interim-closure.

6.11.1.3 At any time during the interim-closure care period, the Department may remove one or more of the interim-closure care requirements described in Section 6 and Subsection 11 Part 3 – Coal Combustion Residuals.

6.11.1.4 If at any time during the interim-closure care period, there is evidence of a contaminant release from the landfill that presents a significant threat to human health or the environment, action to mitigate the threat will be required of the owner or operator of the facility.

6.11.2 Minimum interim-closure care requirements. Interim-closure care shall be in accordance with the Solid Waste Permit and shall consist of at least the following:

6.11.2.1 Maintaining the integrity and effectiveness of the capping system, including making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the cap.

6.11.2.2 Reseeding the cover if insufficient vegetation exists to stabilize the surface.

6.11.2.3 Maintaining and operating the leachate collection and treatment systems until the Department determines that the leachate no longer poses a threat to human health or the environment. The permittee shall submit leachate quantity and quality data to the Department for those parameters and at such frequencies as specified by the Department.

6.11.2.4 Maintaining and monitoring the gas control system in accordance with Section 6.5 and the Solid Waste Permit. The permittee shall submit gas data as specified by the Department.

6.11.2.5 Maintaining and monitoring the surface water management system in accordance with Section 6.6 and the Solid Waste Permit.

6.11.2.6 Maintaining and operating the groundwater monitoring system in accordance with Section 6.7 and the Solid Waste Permit. The permittee shall submit groundwater quality data as specified by the Department.

6.11.3 Prohibitions

6.11.3.1 Standing water shall not be allowed on closed portions of the landfill for more than 24 hours after a rain event. If standing water reoccurs at the same location after two (2) or more non-consecutive rain events, the owner or operator shall remedy the situation in a timely manner.

6.11.3.2 Open burning shall not be allowed on closed portions of the landfill.

6.11.3.3 Unless approved in advance by the Department, no activity shall be conducted on a closed portion of the landfill which will disturb the integrity of the capping system, liner, containment system, or monitoring systems.

6.11.3.4 Access to the closed landfill by unauthorized persons shall be prevented by the use of barriers, fences and gates, or other suitable means.

6.12 ~~Postclosure~~ Post-closure Care

6.12.1 General

6.12.1.1 The owner or operator of an industrial landfill must continue ~~postclosure~~ post-closure care for 30 years after the completion of closure.

6.12.1.2 At any time during the ~~postclosure~~ post-closure care ~~period~~ period, the Department may remove one or more of the ~~postclosure~~ post-closure care requirements described in Section 6, Subsection ~~11.2~~ 12.2 below if it determines that the requirement(s) is/are no longer necessary for the protection of human health and the environment. Modifications to the monitoring plan submitted at the time of the application, and all revisions to the monitoring plan, must be certified by a Professional Geologist registered in Delaware or other Department-approved person that the modifications do not cause increased risks to human health or the environment.

6.12.1.3 At any time after the first five years of the ~~postclosure~~ post-closure care period, the Department may reduce the length of the ~~postclosure~~ post-closure care period or terminate ~~postclosure~~ post-closure care if it determines that such care is no longer necessary.

6.12.1.4 Prior to the time that the ~~postclosure~~ post-closure care period is due to expire, the Department may extend the ~~postclosure~~ post-closure care period if it determines that the extended period is necessary to protect human health and the environment.

6.12.1.5 If at any time during the ~~postclosure~~ post-closure care ~~period~~ period, there is evidence of a contaminant release from the landfill that presents a significant threat to human health or the environment, action to mitigate the threat will be required of the owner or operator of the facility.

6.12.1.6 A Professional Engineer registered in Delaware must certify that the post-closure care of the landfill has been completed in accordance with the post-closure care plan as part of reducing or ending the post-closure care period.

6.12.2 Minimum ~~postclosure~~ post-closure care requirements. ~~Postclosure~~ Post-closure care shall be in accordance with the post-closure permit and shall consist of at least the following:

6.12.2.1 Maintaining the integrity and effectiveness of the capping system, including making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events, and preventing ~~runon~~ run-on and runoff from eroding or otherwise damaging the cap.

6.12.2.2 Reseeding the cover if insufficient vegetation exists to stabilize the surface.

6.12.2.3 Maintaining and operating the leachate collection and treatment systems, if applicable, until the Department determines that the leachate no longer poses a threat to human health or the environment. The permittee shall submit leachate quantity and quality data to the Department for those parameters and at such frequencies as specified by the Department.

6.12.2.4 Maintaining and operating the ~~ground water~~ groundwater monitoring system in accordance with Section 6.7 and the post-closure care plan. The permittee shall submit ~~ground water~~ groundwater quality data as specified by the Department.

6.12.2.5 Maintaining and monitoring the gas control system, if applicable, in accordance with Section 6.5 and the ~~postclosure~~ post-closure care plan. The permittee shall submit gas data as specified by the Department.

6.12.2.6 Maintaining and monitoring the surface water management system in accordance with Section 6.6 and the post-closure care plan.

6.12.2.7 Other post-closure care requirements specified in the solid waste permit.

6.12.3 Prohibitions

6.12.3.1 Standing water shall not be allowed on the closed landfill for more than 24 hours after a rain event. If standing water reoccurs at the same location after two (2) or more non-consecutive rain events, the owner or operator shall remedy the situation in a timely manner.

6.12.3.2 Open burning shall not be allowed on the closed landfill.

6.12.3.3 Unless approved in advance by the Department, no activity shall be conducted on a closed landfill which will disturb the integrity of the capping system, liner, containment system, or monitoring systems.

6.12.3.4 Access to the closed landfill shall be limited to those persons who are engaging in activities which are compatible with the intended ~~postclosure~~ post-closure use of the site.

6.12.4 ~~Postclosure~~ Post-closure land use. The owner or operator shall implement the ~~postclosure~~ post-closure land use plan approved by the Department.

6.12.5 Notice in Deed to Property

6.12.5.1 The owner of the property on which an industrial landfill is located must record an environmental covenant, per **Delaware Code** Title 7, Chapter 79, Subchapter II, with the deed to the facility property that will in perpetuity notify any potential purchaser of the property:

6.12.5.1.1 The land has been used as a solid waste disposal site, and

6.12.5.1.2 The use of land is restricted under this regulation.

6.12.5.2 Included with the notation shall be a map or description clearly specifying the area that was used for disposal.

6.12.5.3 The Department must be notified in writing that a notation has been recorded on the deed within 30 days of recording a notation on the deed to the property.

11 Special Wastes Management

Part 3 – Coal Combustion Residuals

(NOTE: This section applies to those units that contain coal combustion residuals (CCR). Additional requirements for landfills containing CCR and other industrial wastes are located in *Section 6.0 – Industrial Landfills.)*

11.1 General Provisions

11.1.1 Unless otherwise specified by this section, Section 11, Part 3 – Coal Combustion Residuals applies to all existing units, lateral expansions of existing units, and new units containing Coal Combustion Residuals (CCR) in existence as of **[INSERT DATE 21 DAYS AFTER PUBLICATION IN STATE REGISTER]**.

11.1.2 CCR units that have completed closure in accordance with DRGSW prior to **[INSERT DATE 21 DAYS AFTER PUBLICATION IN STATE REGISTER]** must comply with Section 11, Part 3.

11.1.3 Inactive solid waste units containing CCR must complete closure in accordance with DRGSW by **[INSERT DATE 24 MONTHS AFTER PUBLICATION IN STATE REGISTER]**. For the purpose of this section, an inactive unit is defined as a solid waste unit that has not received CCR or is no longer removing CCR for the purpose of beneficial use since **[INSERT DATE 24 MONTHS BEFORE PUBLICATION IN STATE REGISTER]** and has not initiated or completed closure in accordance with DRGSW regulations. The Department reserves the right to allow a variance to this closure requirement.

11.1.4 All surface impoundments within Delaware containing Coal Combustion Residuals must comply with 40 CFR § 257.

11.2 Beneficial Use of CCR

11.2.1 Beneficial Use Criteria

CCR destined for beneficial use within Delaware shall meet the following conditions:

11.2.1.1 The CCR must provide a functional benefit;

11.2.1.2 The CCR must substitute for the use of virgin material, conserving natural resources that would otherwise need to be obtained through practices such as extraction;

11.2.1.3 The use of the CCR must meet relevant product specifications, regulatory standards, or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and

11.2.1.4 When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil, and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil, and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

11.2.2 Permitting

11.2.2.1 No person shall engage in the beneficial use of CCR within Delaware without first having contacted the Department to determine whether a permit is required.

11.2.2.2 Transporters of CCR for beneficial use must have a valid Delaware Solid Waste Transporter permit. The transportation of CCR is subject to applicable requirements of Section 7 of these regulations.

11.2.2.3 The Department can prohibit the beneficial use of CCR within Delaware to protect human health and the environment.

11.3 Construction and Design Standards

11.3.1 CCR landfills must obtain a certification from a Professional Engineer registered in Delaware that the groundwater monitoring system has been designed and constructed to meet the requirements of DRGSW.

11.4 Notification Requirements

Unless otherwise specified within these regulations or the Solid Waste Permit, owners or operators of CCR facilities subject to 40 CFR §257 must provide the Department with all required notifications cited in 40 CFR § 257.106 and the Solid Waste Permit.

11.4.1 Required notifications must be postmarked or sent by electronic mail (email) before the close of business on the day the notification is required to be completed.

11.4.2 Multiple notifications may be combined as long as the deadline requirement for each notification is satisfied.

11.4.3 Unless otherwise specified in 40 CFR § 257.106, these regulations, or the Solid Waste Permit, the notifications specified in 40 CFR § 257.106 must be sent to the Department within thirty (30) days of placing the information in the operating record. The site shall include the required information pertaining to the following categories, as the information becomes available in the facility's operating record:

11.4.3.1 Location Restrictions

11.4.3.2 Design Criteria

11.4.3.3 Operating Criteria

11.4.3.4 Groundwater Monitoring and Corrective Actions

11.4.3.5 Closure Notifications

11.4.3.6 Closure and Post-Closure Care

11.4.3.7 Retrofit Criteria

11.5 Publically Accessible Internet Site

Owners or operators of CCR facilities subject to 40 CFR §257 must comply with the requirements cited in 40 CFR § 257.107 and the Solid Waste Permit for a publicly accessible internet site titled "CCR Rule Compliance Data and Information."

11.5.1 Unless otherwise specified in 40 CFR § 257.107, the information must be available to the public for at least five (5) years following the date on which the information was posted to the CCR Website.

11.5.2 Unless otherwise required in 40 CFR § 257.107, the information must be posted to the CCR Website within thirty (30) days of placing the pertinent information in the operating record.

11.5.3 The site shall include, at a minimum, the required information pertaining to the following categories and all subsequent modifications, as applicable, as the information becomes available in the facility's operating record:

11.5.3.1 Location Restrictions

11.5.3.2 Design Criteria

11.5.3.3 Operating Criteria

11.5.3.4 Groundwater Monitoring and Corrective Actions

11.5.3.5 Closure and Post-Closure Care

11.5.3.6 Retrofit Criteria